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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/274,152	03/22/99	MCVEIGH	J 42390.P7110

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EXAMINER

VO, T

ART UNIT

PAPER NUMBER

2613

DATE MAILED:

12/05/00

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

MS

Office Action Summary

Application No.

09/274,152

Applicant(s)

MCVEIGH ET AL.

Examiner

Tung T. Vo

Art Unit

2613

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☐ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claims ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. & 119(e).

Attachment(s)

- 15) ☒ Notice of References Cited (PTO-892)
- 16) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 17) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6.
- 18) ☐ Interview Summary (PTO-413) Paper No(s). ____
- 19) ☐ Notice of Informal Patent Application (PTO-152)
- 20) ☐ Other:

DETAILED ACTION

Claim Objections

1. Claims 18 and 19 are objected to because of the following informalities: claim 18, line 4, " form" should be changed to "from". Appropriate correction is required.

Drawings

2. This application has been filed with informal drawings which are acceptable for examination purposes only. Formal drawings will be required when the application is allowed.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

1. Claims 1, 4, and 12-15 are rejected under 35 U.S.C. 102(b) as being anticipated by Iu (US 5,293,229).

Re claims 12-15, Iu discloses an apparatus (fig. 1) comprising a motion estimation circuit (32) to receive a stream of data (22, 28, 30) comprising at least an anchor frame (col. 8, lines 63) and predicted frame (P), and to utilize even-parity frame prediction, odd and even fields (figs. 2 and

Art Unit: 2613

3) to predict content of each of a plurality of fields of the predicted frame from corresponding fields of the anchor frame, where the anchor frames, I0 and I1, are used to predict the even field of the next anchor frame, P6. To predict the odd field, P7, of the next anchor frame however, I1 and P6 are used not I0 and I1;

wherein the anchor frame used either precedes or supersedes the predicted frame depending on predicted frame type (col. 8, lines 13);

wherein the motion estimation circuit measures activity content within each of the plurality of fields of the anchor frame to generate a corresponding plurality of motion vectors (col. 8, lines 18-21);

wherein the motion estimation circuit predicts content of a first in the predicted frame from content of a corresponding first field in the anchor frame and a first field motion vectors, and predicts content of a second field in the predicted frame from a corresponding second field and a second field motion vector (col. 8, lines 58-65);

wherein motion estimation circuit (32) generates a motion vector for each a first and second field of the predicted frame by measuring a sum of absolute activity differences (col. 8, lines 13) in a corresponding first and second field of the anchor frame.

Re claims 1 and 4, the method claims 1 and 4 is rejected by Iu for the same reasons as disclosed in claims 12-15.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 2613

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 2, 3, 5-11, 16, 18, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iu (US 5,293,229) in view of Eifrig et al (US 5,991,447).

Re claims 2, 3, 5-11, and 16, Iu discloses the prediction of the odd and even fields (figs. 2, 3, and 4) to predict content of each of a plurality of fields of the predicted frame from corresponding fields of the anchor frame, where the anchor frames, I0 and I1, are used to predict the even field of the next anchor frame, P6. To predict the odd field, P7, of the next anchor frame however, I1 and P6 are used not I0 and I1.

It is noted that Iu fails to particularly disclose wherein the predicted frame and anchor frame are comprised of interlaced video content, wherein a first field of each of the predicted frame and the anchor frame contain even-field interlaced video content, while a second field of each of the predicted frame and the anchor frame contain odd-field interlaced video content as specified in claims 6-11, and 16, and scaled motion vectors of the fields by a dynamically determined motion vector as specified in claims 2.

However, Eifrig teaches a method and apparatus for coding of the odd and even fields of an interlaced-coded as shown in figs. 2, wherein the motion estimation (220 of fig. 2) estimating vectors of the fields, wherein the predicted frame and anchor frame are comprised of interlaced video content, wherein a first field of each of the predicted frame and the anchor frame contain even-field interlaced video content, while a second field of each of the predicted frame and the anchor frame contain odd-field interlaced video content (cols. 7 and 8; figs. 5 and 6), where forward and backward motion vectors are determined by predicting the fields of the current

Art Unit: 2613

image by scaling the forward motion vector of corresponding field of the future image (col. 2).

Taking the teachings of Iu and Eifreig together as a whole, it would have been obvious to one of ordinary skill in the art to modify the teachings of the predicted frame and anchor frame are comprised of interlaced video content of Eifreig into the motion estimation circuit of Iu for the same purpose of performing the fields prediction to obtain interlaced video content as claimed. Doing so would allow to reduce a prediction time and produce a residue signal that can be encoded in fewer bits than the prediction of the predicted frame based on I0 and I1.

Re claims 18 and 19, the combination of Iu and Eifrig further teaches a storage medium comprising a plurality of executable instructions causes a executing processor to implement a motion estimation function as taught by Iu (21, 24, 32, 36, 48 of fig. 1) and (200 of fig. 2).

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Auld et al (US 6,088,391) discloses a method and apparatus for segmenting memory to reduce the memory required for bidirectionally predictive-coded frames

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tung T. Vo whose telephone number is (703) 308-5874. The examiner can normally be reached on M-F 7:30AM-4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chris Kelley can be reached on (703) 305-4856. The fax phone numbers for the


Art Unit: 2613

organization where this application or proceeding is assigned are (703) 308-6306 for regular communications and (703) 308-6306 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.

Tung T. Vo
Examiner
Art Unit 2613

T. Vo
November 30, 2000


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